



P. A. Goldwan

Panawa

1912

Arizona

1913-14-15-16-17





1887		Shrub	Leana, Parawas	<sup>3500 ft.</sup>	After May 6 1912
	Ht. 10-20 ft.	"	"	"	"
1888		"	"	"	"
	Ht. 10 ft.				
89	Grows in masses nearly covering the ground.	Fern	Mt. Piri	4500 ft.	"
1890		Fern	"	"	"
91		Fern	"	"	"
92	In tops of trees.	"	Leana	1800 ft. May 30	"
93	In a tree top	Fern	"	"	"
94	In a tree top	Fern	"	"	"
95	Growing along Leana River.	Shrub	"	2500 ft. June 2	"
96	Ht. 6-10 ft.	Shrub	"	2000 ft.	"
97	Ht. 75 ft. (acorn-like fruit)	Tree	"	1800 ft.	"
98	Living plant	Orchid	"	2500 ft.	"
99	Living plant	Orchid	"	"	"
1900	Living plant	"	"	"	"
1	Living plant	"	"	"	"
2	Living plant	"	"	"	"

Panama, 1912  
June 2

- |      |                                                                     |        |       |          |
|------|---------------------------------------------------------------------|--------|-------|----------|
| 1903 |                                                                     | Orchid | Ceana | 2500 ft. |
| 4    | Living plant                                                        | "      | "     | 3500 ft. |
| 5    | Living plant.                                                       | Palm   | "     | 2000 ft. |
| 6    | Fruit only                                                          | Shrub  | "     | "        |
| 7    | St. 10-15 ft.                                                       | Fern   | "     | "        |
| 8    | Growing on a stump and overhanging a bank                           | Fern   | "     | "        |
| 9    | Overhanging a bank - growing about 6 ft. long. #                    | Fern   | "     | "        |
|      | In masses over open sunny slopes, partially<br>reclining.           | Fern   | "     | "        |
| 1910 |                                                                     | Fern   | "     | "        |
| 10   | Hanging suspended from a log on a steep<br>bank                     | Fern   | "     | "        |
| 11   | Growing on a stump on a steep bank                                  | Fern   | "     | "        |
| 12   | Living plant                                                        | Orchid | "     | "        |
| 13   | From a rotten limb which had fallen from<br>the top of a tall tree. | Fern   | "     | 1800     |
| 14   | From a fallen limb in forest                                        | Fern   | "     | 3500 ft. |
| 15   | From a fallen limb in forest.                                       | Fern   | "     | "        |

June 3

Panama, 1912

June 3

1916

From a fallen limb in forest.

Fern

Ceana

3500 ft.

17

Living specimen, from fallen limb.

Drebid

18

Living specimen, from fallen limb.

19

"

2000 ft.

June 10

1920

21

"

Piri Range

4500 ft.

June 11

22

"

23

"

24

"

25

"

26

"

27

"

28

"

29

"

Ceana

3000 ft.

10

1930

Panama, 1912  
June 12

1931

Orchid

Canna

3000 ft.

32

" "

33

" "

34

" "

35

" "

36

" "

37

" "

38

" "

39

" "

1940

" "

1

" "

2

" "

3

" "

4

" "

5

" "

Panama, 1912

1946

Barrigona

47

Drupe

48

49

1950

51

52

53

54

55

56

Cactus

1800 ft.

57

Phyllocactus

58

Cactus

2000 ft.

59

The common tree fern (photo)

Fern

Piri Range (east slope) 5000 ft.

1960

From fallen limb

Fern

4500 ft.

Palm Piri Range (east slope) 5000 ft.

June 12

		Panama,	1912
1961	From fallen limb	Purri Range (east slope) 4500 ft.	June 12
62		Shrub	"
63		shrub	"
64		Fern	"
65 ♀	From fallen limb	"	"
66	From fallen limb	"	"
67	From fallen limb	"	"
68	a tree species; ht. 6-10 ft.	Fern	"
69	From fallen limb	Fern	"
1970	ht. 4-6 ft., very abundant.	Palm	"
71	From fallen limb	Fern	"
72	From fallen limb	Fern	"
73	a common sp. about 30 ft. high.	Tree	"
74	ht. 30 ft., called "cacao silvestre"	Tree	3000 ft.
75	From fallen limb	Fern	500 ft.
		Aruga	June 16

1976

77

Living plant

78

Living plant

79

Living plant

80

Living plant

81

Fern

Ariza

500 ft.

June 16

Orchid

Marraganti

sea level

June 21

Sumacate

"

"

June 22

"

"

"

"

"

"

"

Cactus

Leona

2000 ft.

Mar. 6

82

Orchid

Marraganti

sea level

May 6  
June 24

83

Gcod

Palm

"

"

"

84

"

"

"

"

85

Cactus

Pinogana

"

June 21

86

Fern

Marraganti

"

"

Panama, 1912

June 16

June 21

June 22

"

"

"

"

"

"

"

"

"

1987. *Ephedra trifurca*

88 *Atriplex* (d. young wns)

89 (Fragaria-like), "

90 *Parosela spinosa*

91 *Populus*

92 *Atriplex canescens*

93 *Pectinocerous?*

94 *Baccharis*

95 *Atriplex* (d. young wns)

96 *Atriplex* (very pub)

97 (very pub)

98 On bare plain

99 *Opuntia*

2000

Surf in green

1 *Opuntia*

Flat-jointed, almost spineless. Ht. 2-3 ft.  
Green plant collected.

Parker

400 ft.

Arizona, 1913  
Feb. 10

"

"

Colorado River, Calif. (opposite Parker, Ariz.) Feb. 11/13

Parker

350 ft.

Feb. 14

"

Feb. 20

Colorado River, Calif. (opposite Parker, Ariz.) Feb. 21

Parker

350 ft.

Feb. 22

"

"

Feb. 23

"

"

"

"

"

"

400 ft.

Feb. 27

2002

3 Ephedra

Herb  
Ht. 6-8 ft.

4 Lycium lived rock, flowers &amp; fruit

At. 3 ft.  
Shrub  
Ht. 4-6 ft.5 Opuntia (Cholla style) from verbenum specimen,  
Ht. 3-4 ft.

6 Opuntia (very slender) (grm)

1-2 ft.

7 Echinocactus (grm)

At. 1-2 1/2 ft.

8 Echinocactus (grm)

Parker

9 Mammillaria (grm)

Ht. 2-3 ft.

2010

2010 Agave

Ht. 10 ft.

11 Acacia constricta

Shrub

12 Adenanthos emoryi

Ht. 10 ft.

13 Mesosphaerum emoryi

Ht. 6-10 ft.

14 ad. f.

Shrub

Ht. 3-4 ft.

15 Echinocactus (Same sp. as 2008)

At. 2-3 ft.

16 (Blue fls.)

Shrub

Ht. 2-3 ft.

Wicksburg

Arizona, 1913  
250 ft. Feb. 27

1400 ft. Mar. 5

" "

" Mar. 19

1200 ft. "

1600 ft. "

1600 ft. "

" "

Plomosa Mts. (Black Mesa) 2000 ft. Mar. 18

1400 ft. "

Wicksburg

" "

Mar. 19

" "

" "

" "

" "

Wickenburg

2000 ft.

Mar. 22

2017 *Ceanothus hololeucus*

18 *Ephedra trifurca*

19 *Ancylia farinosa*

20 *Polygonum*

21 *Mesosphaerum emoryi*

22

Fern

23

Fern

24 *Rhamnus*

25 *Prunus*

26 *Ribes aurum* Pursh

27 *Juniperus pachyphloea* (checkered bark)

28 *Quercus arizonica*

29 *Quercus emoryi*

30 *Arctostaphylos pungens* HBK.

31 *Cowania stansburiana* Tarr. Shrub

Wickenburg

Arizona, 1912.  
2000 ft. Mar. 22

Phoenix

1100 ft apr. 11

"

"

"

"

Prescott

5300 ft. apr. 20

"

"

"

"

"

"

"

"

2032	<i>Forstiera arizonica</i> (Gray)	Shrub	Prescott	Arizona, 1913. 5300 ft. Apr. 20
33	<i>Echinocactus</i>		"	"
	Grows in bunches among rocks.			
34	Opuntia (cholla style) (Herbarium & green specimen)		Mormon Lake (25 mi. S. of Flagstaff) alt. about 6900 ft. May 2	
35	<i>Mammillaria</i>		"	"
36	<i>Echinocactus</i>		"	"
1	37 <i>Echinocactus tidiatromii</i> . [Fide Rose] photo		Grand Canyon (Bright Angel Trail) 6000 ft. May 31	
	Large deep red fls.		"	
2	38 <i>Echinocactus aggregatus</i> Engelm.?		"	5000 ft. "
3	39 <i>Echinocactus aggregatus</i> Engelm?		"	3800 ft. "
420 40	<i>Echinocactus engelmanni</i>		"	" "
	(Love spines)			
5	41 Opuntia (Sm. sp., yellow fls.)	photo	"	4500 ft. "
6	42 <i>Opuntia basilaris</i>		"	2500 ft. "
7	43 " (Herbarium & green specimen large sp. with yellow fls.)	photo	"	3800 ft. "
8	44 <i>Opuntia mysticaria</i>	photo	"	Plateau at 3800 ft. "
	Long spines - on plateau			
9	45 <i>Echinocactus</i>	photo	"	" "
46	Opuntia franciscana?	photo	Flagstaff (Black Bill Park, 12 mi. N.E.) 6800 ft. June 4	
	Isolated clumps in parks.			

- whipplei Engelm.
- 2047 Opuntia (cholla style) (Huberian & green specimens)  
Flagstaff (Black Bill Park) 2 mi. N.E. 6800 ft. June 4.  
photo
- 48 Ranunculus alismatifolius Geyer Photo  
Mormon Lake (25 mi. S. of Flagstaff) 7200 ft. May 3
- 49 Juniperus (stringy bark) utahensis (Engelm.) Lemmon  
" " "
- 2050 Pinus edulis  
" " "
- 51 Grossularia Ribes inebrians Lindl. Flagstaff (9 mi. N.E.) 6800 ft. May 9
- 52 Psoralea micrantha Gray Shrub  
Litter by prairie dogs " June 4
- 53 Lycium pallidum Miers Lyctium-like Shrub  
" " "
- 54 Astragalus loco? Shrub  
" " "
- 55 Yucca angustissima Trelease  
" (9 mi. E. at edge of cedar belt) 6700 ft. "
- 56 Yucca angustissima Photo  
" " "
- 57 Yucca glauca Nutt.? " " "
- 58 Aroniacaria marmorea Schneid. Shrub or tree  
Ht. 15 ft. Mt. Elden (near Flagstaff) 7500 ft. "
- 59 Salix Ht. 15 ft. " " "
- 2060 Echinocactus Grand Canyon (Bright Angel Trail) 6000 ft. May 31
- 61 Cercocarpus pauciflorus flabelifolius Rydb. " " "

	<i>Cowania stansburiana</i> Torr.		Arizona, 1913.
2062	<del><i>Tecoma capensis</i></del>		Grand Canyon (Bright Angel Trail) 6000 ft. May 31
	Finely divided leaves - associated with 2061.		
63	<i>Coleogyne ramosissima</i> Torr. Shrub	"	3800 ft. "
	The dominant species on plateau bordering inner gorge at 3800 ft. - Ht. about $2\frac{1}{2}$ ft.		
64	<i>Agave</i>	"	4000 ft. "
	Ht. 10 ft. - Rather common between 3800 & 4000 ft. on Upper Sonoran slopes. - photo		
65	<i>Bursera</i> Odastman <i>fremontii</i> (Torr.) Rydb.	"	4500 ft. "
	Ht. 10 ft.		
66	<i>Schmalztzia coccodes</i> Greene	"	" "
	Ht. 6 ft.		
67	<i>Fraxinus cuspidata</i> Torr.	"	" "
	A common and handsome flowering species. - photo.		
68	<i>Fraxinus anomala</i> Torr.	"	" "
	Rounded leaf - Ht. 10 ft. - less common than 2067		
69	<i>Ostrya knowltoni</i> Tree	"	5000 ft. "
	Hop hornbeam - Ht. 15-25 ft. Common along gullies between 4000-5000 ft.		
2070	<i>Galium matthewsii</i> Gray Shrub	"	6000 ft. "
	Ht. 1 ft.		
71	<i>Fendlerella cynoides</i> Greene Shrub	"	5000 ft. "
	Ht. 1-1 $\frac{1}{2}$ ft.		
72	<i>Farsellisia spinescens</i> (Gray) Greene Shrub	"	" "
	Ht. 3 ft		
73	<i>Ephedra revadensis</i> S. Wats.	"	4000 "
	Short bracts - Same as 2074?		

- |         |                                                            |           | Grand Canyon (Bright Angel Trail)                         | 4000 ft. | May 3      |
|---------|------------------------------------------------------------|-----------|-----------------------------------------------------------|----------|------------|
| 2. 2074 | <i>Ephedra nevadensis</i> S. Wats.                         |           | "                                                         | "        | "          |
|         | Short bracts - associated with 2075.                       |           | "                                                         | "        | "          |
| 75      | <i>Ephedra viridis</i> Coville                             |           | "                                                         | "        | "          |
|         | Long bracts - associated with 2074.                        |           | "                                                         | "        | "          |
| 76-     | <del>Philadelphia</del> <i>Fendlera Tomentella</i> Thunber |           | "                                                         | "        | 6000 ft. " |
| 77      | <i>Grossularia Ribes intermedium</i> Lindl.                |           | "                                                         | "        | "          |
| 78      | <i>Amelanchier utahensis</i> Kochne Shrub                  |           | "                                                         | "        | "          |
|         | Ht. 6 ft. - service-berry                                  |           | "                                                         | "        | "          |
| 79      | <i>Symphoricarpos vaccinoides</i> Rydb. Shrub              |           | "                                                         | "        | "          |
|         | Ht. 3 ft.                                                  |           | "                                                         | "        | "          |
| 2080-   | <i>Ptelea angustifolia</i> Benth. Shrub                    |           | "                                                         | "        | "          |
|         | Ht. 6-10 ft.                                               |           | "                                                         | "        | "          |
| 2081-   | <i>Ptelea angustifolia</i> Benth. Shrub                    |           | "                                                         | "        | "          |
|         | Ht. 6-10 ft. - Same as 2080?                               |           | "                                                         | "        | "          |
| 6 2082- | <i>Razamofskya cryptopoda</i> (Engelm.) Coville -          | Flagstaff |                                                           | 7000 ft. | June 15    |
|         | Parasite on <u><i>Pinus ponderosa</i></u>                  |           |                                                           |          |            |
| 2083-   | <i>Opuntia</i>                                             | -         | Walnut Canyon (10 mi. S.E. of Flagstaff) (about 6500 ft.) | "        | "          |
|         | Yellowish spines, Snt in green                             |           |                                                           |          |            |
| 2084-   | <i>Tamburus neomexicana</i> Weston                         | -         | "                                                         | "        | "          |
| 20      | 2085- <i>Bartsia Odastemon fremontii</i> (Torr) Rydb. --   |           | "                                                         | "        | "          |
|         |                                                            |           | "                                                         | "        | "          |
|         | Ht. 10 ft.                                                 |           | "                                                         | "        | "          |
| 2086-   | <i>Populus trichocarpa</i>                                 | -         | "                                                         | "        | "          |
|         |                                                            |           | "                                                         | "        | "          |
| 2087-   | <i>Vitis arizonica</i> Engelm.                             |           | "                                                         | "        | "          |
|         |                                                            |           | "                                                         | "        | "          |
| 2088-   | <i>Juniperus scopulorum</i> Sarg.                          |           | "                                                         | "        | "          |
|         | <i>alabamensis</i> ?                                       |           |                                                           |          |            |

2089 - *Cornus instalonia* A. Nels.

Ht. 6 ft.

2090 - *Symphoricarpos rotundifolius* Gray

Ht. 6 ft.

91 - *Juglans major* (Torr.) Heller

Ht. 10-25 ft.

92 - *Robinia neomexicana* Gray Shrub or tree.

Ht. 10-25 ft.

93 - *Yucca baccata*

94 - *Ptelea malis* Curt.

Ht. 6-8 ft.

95 - ~~Sporaa~~ *Chamaebatiaria millefolium* (Torr.) Maxim.

S. millefolium?

Ht. 4-8 ft.

96 - *Salix*

Ht. 10-20 ft.

97 - *Darsiphora fruticosa* (L.) Rydb. Shrub

gut. fl.

Ht. 3 ft.

98 - *Amelanchier marmionia* Schneid. Shrub

Service - 30 ft.

Ht. 6 ft.

99 - *Distigia involucrata* (Richards.) Rydb. Shrub

along water, among quaking aspens

Ht. 3 ft.

2100 - ~~Ribes~~ *Grossularia pinnatum* (Burm.) Cov. & Britt.

Ht. 3-6 ft.

1 - *Abies concolor*

2 - *Prunus emarginata* (Dougl.) Walp. Shrub

Sm. wh. fls.

Ht. 6-8 ft.

3 - *Pachystima myrsinoides* Raf. Shrub

Ht. 2 ft.

Arizona, 1913.

Walnut Canyon (10 mi. S.E. of Flagstaff) about 6500 ft. June 15.

" " "

Start Spring (15 mi. N.E. of Flagstaff) 8700 ft. June 15

Start Spring (15 mi. N.W. of Flagstaff) 8700 ft. "

" " "

Kendrick Peak

About 8500 ft. June 27

" " 8500 ft.  
8000 "

" " 9000 ft. "

- 2104 - *Ambachier marmarica* Schneid.  
 Service Berry  
 5 - *Acer glabrum* Torr.  
 6 - *Cytherea bulbosa* (L.) Hauss. Orchid  
 7 - *Symphoricarpos rotundifolius* Gray  
 8 - *Darbus scopulina* Greene Shrub  
 At. 6 - 10 ft.  
 9 - *Leomus instolonea* A. Nels. Shrub  
 2110  
 2110 - *Picea engelmanni* (Parry) Engelm.  
 At. 6 - 8 ft.  
 11 - *Sambucus microbotrys* Rydb. ?  
 12 - *Viola canadensis* L.  
 13 - *Delphinatis Aquilegia chrysantha* Gray  
 14 - *Odontemon repens* (Lindl.) C.K.L. Shrub  
 At. 6 - 10 in  
 15 - *Salix*  
 16 - *Rubus arizonicus* (Greene) Rydb. Shrub  
 At. 1 - 2 ft.  
 18 - *Lonicera ciliata* Poir.  
 19 - ~~Holodiscus~~ *Sericotheca dumosa* Rydb. Shrub  
 At. 6 - 10 ft.

Skandwick Peak -

Arizona, 1913.  
8500 ft. - June 27

9000種

四

11

61

19

"  
Little Spring

68

64

64

61

卷之三

- 1

11

9000種

6

14

八

8540 ft.

9-0003

1923.00

7

18

- 1 -

11

卷之三

11

6

- 2120 - *Thalictrum fendleri* Engelm.

21 - ~~Grossularia~~ *Ribes sibirianum* Lindl.

22 - *Dugaldia hoopesii* (Gray) Rydb. shrub  
Yellow composite sativa by Callospermoph.

23 - *Calochortus nuttallii* T. & G. shrub

24 - *Rosa*

25 - *Ceanothus*

26 - *Frauera venosa* Greene Nutt.  
*Frasera speciosa?*

27 - *Iris missouriensis* Nutt.

28 - *Juniperus sibirica* Bunge  
Dwarf species

29 - *Anticlea elegans* (Pursh) Rydb. Nutt

30 - ~~shot~~? *Primula parryi* Gray Nutt

31 - *Agoseris purpurea?* Nutt

32 - *Madronella* Nutt

33 - *Distegia involucrata* (Richards.) Stand.  
Black berry in reddish crevices

34 - *Aconitum columbianum* Nutt. Nutt  
Monkshood

2135 - *Ribes montigenum* McCl.

36 - *Salix*

37 - *Douglasia arizonica*

38 - *Vitis arizonica* Engelm.

39 - *Juniperus scopulorum* Larg.  
Stringy bark - lax foliage.

40 - *Ceanothus stansburiana* Torr.

41 - *Garrya wrightii* Gray

42 - *Tetradymia inermis* Nutt. Shrub  
Probably upper Sonoran Ht. 2 $\frac{1}{2}$  ft.

43 - ~~Gossypium~~ *Ribes cereum* Lindl.

44 - *Cheilanthes eatoni* Gray. Fern  
Ht. 3-5 ft.

45 - ~~Barbarea~~ *Odasternum fremontii* (Torr.) Rydb.

46 - *Opuntia procumbens*  
Smt green

47 -  
Smt green

48 - *Opuntia procumbens*  
Barbarum specimen (fl. only) same as 2146

49 - *Cechnocarpus*  
Barbarum specimen

Arizona, 1913  
San Francisco Mts - Ceratin, at 10000 ft. - July 16

Mt. Elden - 7000 ft. - July 17

2150 - *Opuntia*

yellow fls. - *Barbarum specin*

51 - *Opuntia*

sent in green - same as 2150.

52 - *Opuntia*

53 - *Juniperus monosperma* (Engelm.) Sarg.  
stiff foliage - stringy bark

54 - *Juniperus scopularum* Sarg.

55 - ~~Rubus~~ *Schmalzia trilobata* (Nutt.) Greene

56 - *Artemisia frigida* Willd.

sm. sp. with fine leaves

57 - *Atriplex canescens*!

58 - *Chamaebatiaria millefolium* (Torr.) Maxim.  
*millefolium*

59 - *Rosa*

60 - *Rubus parvifolium* (Nutt.) Rydb.  
Thimble-berry

61 - ~~Acacia~~ *Negundo interior* Britton  
maple.

62 - ~~Acacia~~ *Negundo interior* Britton  
~~bush-elder~~ box elder

63 - *Leucanthus fendleri* Gray

64 - *Garrya mollis* Greene

Arizona, 1913.

Flagstaff (Black Bill Park, 12 mi N.W.) 6800 ft. July 17

" " "

Walnut Canyon (5 mi. S. of nut. cedar) <sup>6500 ft.</sup> July 19

" " "

" " "

" " "

" " "

" " "

" " "

Oak Creek (18 mi. S.E. of Flagstaff) 5400 ft. - July 24

" " "

" " "

" " "

" " "

" " "

2165 - *Populus angustifolia* James.

66 - *Agave*

67 - *Alnus tenuifolia* Nutt.

68 - *Ceratonia pistilonea* A. Nels.

69 - ~~Prunus~~ *Padus melanocarpa* (A. Nels.) Shafner

2170 - *Platanus rufightii* S. Wats.

71 - *Rubus arizonicus* (Grun.) Rydb.

72 - *Nolina*

73 - *Abies concolor*

74 - *Philadelphus argenteus* Rydb.

*Philadelphus* ??

75 - ~~Holodiscus~~ *Sericotheca dumosa* Rydb.

76 - *Symporicarpus rotundifolius* Gray

77 - *Ptelea mollis* Curt.

78 - *Arctostaphylos Tormentaria* Dougl.

*pubescens* form

79 - *Arctostaphylos pungens* HBK.

*glabra* form

Arizona, 1913.  
Oak Creek (18 mi. S.E. of Flagstaff) 5400 ft., July 24

" (13 mi. S.E. of Flagstaff) 6400 ft. "

" (18 mi. S.E. of Flagstaff), 5400 ft. "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

2180 - *Quercus emoryi*

81 - *Quercus arizonica*

82 - *Rhamnus crocea pilosa* Trilobata

83 - *Rhamnus ursina* Greene

84 - *Ceratægus*

85 - *Sambucus monceuxiana* Wooton

86 - *Juglans major* (Turr.) Heller

87 - *Rhus crenulata* Greene

Smooth

88 - Fern

89 - *Pellaea atropurpurea* (L.) Link Fern

2190 - *Opuntia*

sm. sp. sent in green

91 - *Teleomea serrulata* Pursh Herb

92 - *Symplocarpus vaccinoides* Rydb.

93 - *Mamillaria*

Herbarium specimen

94 - *Mamillaria*

Sent in green - same as 2193

Arizona, 1913

Oak Creek (18 mi. S.E. of Flagstaff) 5400 ft. July 24 -

"

"

" -

"

"

"

"

"

"

"

Flagstaff

6900 ft. July 28

Aridson Canyon (20 mi. S.E. of Flagstaff) 7000 ft. July 31

Aridson Mesa

"

"

2195 - *Opuntia*

96 - *Burseria*? *Forstertia neomexicana* Gray

97 - *Amulanchier marmonica* Schneid.  
Service-Berry

98 - *Durusus*

99 - *Opuntia*

2200 - *Opuntia basilaris*

1 - *Opuntia*

2 - *Opuntia*

3 - *Opuntia*

Deep red fruit - said to have deep red fls.

4 - *Opuntia*

Pink fruit - said to have yellow fls.

5 *Palintella plattensis* Nutt. Woody herb

6 *Fendlera tomentella* Thunber.

7 *Symporicarpus rotundifolius* Gray

8 *Pentstemon*

1868

Humus working on fls.

9 *Cercocarpus pauciflorus* flabellifolius Rydb.

Arizona, 1913.

Anderson Canyon (30 mi. S.E. of Flagstaff) 6500 ft. July 31

6800 ft. " 6

Anderson Mesa " 7000 ft. "

Anderson Canyon " " "

Grand Canyon (Bright Angel Trail) 6500 ft. Aug. 18

4000 ft. Aug. 19

" (Indian Gardens) 3800 ft. Aug. 25

" " "

" " "

" (Bright Angel Trail) 6500 ft. Aug. 19

" " "

6800 ft. "

" " "

2210 *Ephedra viridis* Cosselle

*Chamaebatisia*

11 ~~Spiraea~~ *millefolium* (Torr.) Maxim.

12 ~~Loropetalum~~ *Cowania stansburiana* Torr.  
var.

13 *Sambucus neomexicana* Wooton

14 *Eriogonum* Shrub  
common along river

15 *Amelanchier utahensis* Kochne Shrub  
Along river & down to 5500 ft. At. 4-6 ft.

16 *Prunus undulata*

17 ~~Grossularia~~ *Ribes neberianis* Lindl.

18 *Cercocarpus arizonicus* Jones Shrub

19 ~~Ribes~~ *Grossularia volutina* (Greene) C. B.

2220 *Ostrya knowltonii*

21 *Argemone*

22 *Ptelea angustifolia* Benth.  
Small leaves

23 *Fraxinus cuspidata* Torr.

24 ~~Phacelia~~ *Schmalztzia cissoides* Greene

Arizona, 1913.

Grand Canyon (Bright Angel Trail) 6800 ft. Aug 19

" " "

" " "

" " "

" " "

" " "

" (El Tovar) 6866 "

" " "

" (Near El Tovar) 7000 ft. "

" (Bright Angel Trail) 6800 ft. "

" " "

" " "

" " "

" " "

" " "

" " "

2225 *Bernardia myricaefolia*  
Euphorbiaceous sp.

26- *Atriplex canescens*

27 *Coleosanthus reniformis* (Gray) Shrub

28 *Ptelea angustifolia* Benth.

Narrow leaf

29 *Leltis reticulata* Torr.

2230 *Anelia frutescens* Gray  
Green leaves

31 *Cercis occidentalis* Torr.

32- *Atriplex canescens* (Pursh) Nutt.

33 *Stanleya arcuata* Rydb. Shrub

34 *Parthenium incanum* H.B.K. Shrub

35 *Isocoma*

36 *Gutierrezia*

37 *Salix*

Broad leaf

38 *Salix*

Narrow leaf

39 *Baccharis emoryi* Gray

Arizona, 1913  
Grand Canyon (Bright Angel Trail) 4800 ft. Aug. 19

" " "

" (Indian Gardens) 3800 ft. Aug. 20

" " "

" " "

" " "

" " "

" " Aug. 21

" " "

" " "

" " Aug. 25

" " "

" " "

" " "

2240 *Vitis arizonica* Engelm.

41 *Adiantum capillus-veneris* L. Fern

42 - *Echinocerous*

Long spines

43 *Dipsosia wrightii* Gray

Shrub

44

g.s.

45 *Pluchea sericea* (Nutt.) Cossille

46 *Bernardia myricaeifolia* Shrub  
Euphorbiaceous species

47

48 *Ephedra nevadensis* S. Wats.

49 *Barecharis glutinosa* Pers.

Narrow tr.

2250 *Eucelia farinosa*

51 - *Salix bebbiana* Sarg.

52 - *Rosa*

53 - *Prunus emarginata* (Daudz.) Walp.

54 - *Lonicera ciliosa* Poir.

Arizona, 1913.  
Grand Canyon (Indian Gardens) 3800 ft. Aug. 25

" (Indian Garden Creek) 3500 ft. Aug. 26

" " "

" (Pipe Creek) 2700 ft. Aug. 27

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" Bell Williams Mt. 9000 ft. Sept. 6

" " "

" " "

" " "

2	2255 - <i>Ceanothus fendleri</i> Gray		Bell Williams Mountain	Arizona, 1913 7000 ft. Sept. 7
56	<i>Oreobatus neomexicanus</i> (Gray) Rydb. <i>Trichoscytus</i>	"	"	" "
57	<i>Sambucus neomexicana</i> ?	"		8000 ft. "
58	<i>Sambucus neomexicana</i> Wooton	"		7300 ft. "
59	<i>Ribes Grossularia</i> <sup>St in fruit</sup> <i>pumilum</i> (Burm) C.T.B.	"		8500 ft. "
2260	<i>Sorbus scopulina</i> Greene Shrub	"		" "
61	<i>Amelanchier marmionica</i> Schneid.	"		" "
62	<i>Symphoricarpos vaccinoides</i> Rydb. ?	"		" "
63	<i>Symphoricarpos rotundifolius</i> Gray <sup>2262?</sup>	"		7300 ft. "
64	<i>Acer glabrum</i> Torr.	"		8500 ft. "
2:	65 <i>Chrysothamnus</i>	Shrub	Williams	6750 ft. Sept. 9
66	<i>Echinocactus</i>		Aubrey Valley, 10 mi. N. of Pica	5600 ft. Sept. 18
67	<i>Pinus ponderosa</i>		Pine Spring, Hualapai Ind. Res.	7000 ft. Sept. 19
68	<i>Opuntia</i> <i>long-jointed cholla</i>		Prospect Valley	4500 ft. Sept. 30
69	<i>Opuntia</i> <i>flat-jointed</i>		"	5500 ft. Oct. 1

2270 - *Mammillaria*

71 - *Nolina*

72 - *Opuntia whipplei*

73 - *Atriplex canescens*

74 - *Cercocarpus parvifolius montanus* Raf.

75 - *Nolina*

76 - *Dicerasys arizonicus*

77 - *Eriogonum*

Shrub

78 - *Berberis Odostemon haematocarpa* (Wooton)  
Heller

79 - *Dicerasys*

Low-growing with small spiney twigs.

2280 - *Telosma serrulata* Pursh  
white fls.

81 *Amelanchier utahensis* Kochne Shrub  
Growing along river at El Dorado

82 ~~Pithecellobium~~ *Gracilaria leptantha* (Gray) C. T. S.

83 *Juniperus monosperma* (Engelm.) Sarg.

84 *Juniperus utahensis scopularum* Sarg.

Arizona, 1913

Prospect Valley, Hualapai Ind. Res. Sept. 30. 4500 ft.

Grand Canyon, Lower end of Prospect Valley .. ..

" " " " 6800 ft.

Aubrey Valley, 10 mi. N. of Pica, Hualapai Ind. Res. Sept. 18-5600<sup>ft</sup>

" " " "

" " " "

" " " "

" " " "

" " " "

" 10 mi. S. of Pine Spgs. " Sept. 19 6000 ft.

Pine Spring, (8 mi N.) " Sept. 20 7000 ft.

" " " "

" " " "

" " " "

2285 - Ceanothus

86 - *Lippia rotundifolia* (Parry) Engelm.  
Light-colored leaves

87 - *Schultzia trilobata* (Nutt.) Greene

88 - *Nathaliaea sinuata* (Sw.) Parry. Fern

89 - *Ephedra nevadensis* S. Wats.

2290 - *Chrysanthamus* Shrub  
*Ceonatum composite*

91 *Eriogonum* Shrub

92 - *Echinocactus*  
Small-bunched species

93 - *Echinocactus*  
Large species

94 *Astragalus* Shrub  
Eaten by mountain sheep

95 - *Mesophyllum succulentum* Lipsia Wrightii Eng.

96 *Opuntia Basilaris*

97 *Urtica* shr.

98 *Echinocactus* (bunched species)

99 *Echinocactus* (clumps)

Arizona, 1913

Prospect Valley (lower end) Hualapai Ind. Res. Sept. 25, 5000 ft.

" " " "

Grand Canyon (lower end of Prospect Valley) Sept. 26 4500 ft.

" " " "

" " " "

" " " "

" " " "

" " " "

" Near lower end of Prospect Valley " 6500 ft

" Lower end of Prospect Valley " 4500 ft.

Tinajas Altas Nov. 20

" "

Pine Parks Dec. 4

" "

2300

Slender 5-ridged cactus

1-Cylindropuntia (Very common sp.)

2 " (Very slender sp.)

3-Mamillaria

4-Cylindropuntia Bigelovii

5-Greca-like plant

6-Mesosphaerum emoryi (Torr.)

7-Ericameria

imparts white color common on upper slopes of Gila Mts.

8-Jatropha spathulata

9-Elaeagnus microphyllum

2310-Agave

common on upper slopes of Gila Mts.

11-Rhus ovata S. Wats.

12-Atriplex

13-Zizyphus

Prickly pear like us

14-Gaertneria ambrasioides (Cav.)  
sp. with 2 burrs

Tule Tanks, Arizona

Arizona, 1913  
Dec. 4

" " "

" " "

" " "

" " "

Pinjas Altas " Nov. 20

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

- |                                                                 |                                                                                              |                                |                                        |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------|
| 2315- <i>Lycium</i>                                             | <i>Lycium sp. ssp. ssp.</i>                                                                  | Tinajas Altas, Arizona         | Nov. 20                                |
| 16- <i>Asclepias subulata</i> DC.                               | <i>Asclepias sp.</i>                                                                         | "                              | "                                      |
| 2317- <i>Gautneria dumosa</i> (Gray) Kratz                      | <i>Gautneria dumosa</i> (Gray) Kratz<br><i>Tephroseris acutifolia</i>                        | "                              | "                                      |
| 18 <i>Gymnopelta corymbosum</i> DC.                             | <i>Gymnopelta corymbosum</i> DC.<br>Grown in the <sup>soil</sup> <del>interior</del> of mud, | Gila Mts.                      | " (8 mi. N. of Tinajas Altas, Nov. 25) |
| 19 <i>Salicornia mexicana</i> Gray                              | <i>Salicornia mexicana</i> Gray<br>Grown on lower slopes of mud.                             | "                              | "                                      |
| 23 20- <i>Ephedra nevadensis</i> S. Wats.                       | <i>Ephedra nevadensis</i> S. Wats.                                                           | "                              | "                                      |
|                                                                 | <i>Bilosperone californica</i> Benth.                                                        | "                              | "                                      |
| 21- <i>Anisocanthus thurberi</i> Gray                           | <i>Anisocanthus thurberi</i> Gray<br>Stems with flowers about 1 ft. high                     | "                              | "                                      |
| 22- <i>Cneilia farinosa</i>                                     | <i>Cneilia farinosa</i>                                                                      | "                              | "                                      |
| 23- <del>Haboldinia spinosa</del> <i>Holacantha emoryi</i> Gray | <i>Holacantha emoryi</i> Gray                                                                | Rule Tanks                     | " (2 mi. south) Dec. 11                |
| 24- <i>Harsfordia emoryi</i> Gray                               | <i>Harsfordia emoryi</i> Gray                                                                | Rule Mts. Sonora               | "                                      |
| 25 <i>Ditaxis</i>                                               | <i>Ditaxis</i>                                                                               | "                              | "                                      |
|                                                                 | <i>Euphorbiaceous shrub</i>                                                                  |                                |                                        |
| 26 <i>Acer glabrum</i>                                          | <i>Acer glabrum</i>                                                                          | Graham Mts, Arizona (9000 ft.) | July 24, 1914                          |
| 27 <i>Pitsa Grossularia leptantha</i>                           | <i>Grossularia leptantha</i>                                                                 | "                              | "                                      |
| 28 <i>Ptelea Tomentosa</i> Raf.                                 | <i>Ptelea Tomentosa</i> Raf.                                                                 | "                              | 5000 ft. N. slope ..                   |
| 29 <i>Edwinia americana</i>                                     | <i>Edwinia americana</i>                                                                     | Shrub                          | 9000 ft. ..                            |

2330 - *Rhamnus betulifolia*

31 - *Rubus Osoensis neomexicanus*  
Thimbleberry

32 - *Nolina microcarpa* S. Wats.

33 - *Ceanothus fendleri* Gray

34 - *Ceanothus mogollonius*

35 - *Arbutus arizonicia*

36 - *Populus wisilizeni*  
*d. Broad-leaved*

37 - *Fraxinus attenuata* Jones

38 - *Ephedra trifurca*

39 - *Ceanothus fendleri*

*long glaucous pub.*

2340 - *Arctostaphylos pungens* A. Nels.

41 - *Agave palmeri* Parryi Engelm.

42 - *Lemnaceae* arizonicia

43 - *Populus wisilizeni*  
*small leaved sp.*

44 - *Peniocereus greggii*  
*long, slender c. - wld.*

Bacca

Arizona - 1914.  
Graham Mts., N. slope, July 24 - 9000 ft.

" " "

" " " 5000 ft.

" " " 8000 ft.

" " " 9000 ft.

" " " 8000 ft.

" SW. base July 26 4600 ft.

" " "

" " " 6000 ft.

" W. slope "

" " " 8500 ft.

" " "

Santa Teresa Mts. July 29 "

" Black Rock Wash " 4500 ft.

Gila Mts., W. base Aug. 1 (Graham Co.) 4000 ft.

2345-	<i>Parkinsonia Cercidium torreyanum</i>	Gila Mts., W. base (Graham Co.)	Aug. 1	Arizona, 1914, 3500 ft.
46 -	<del>Mesosphaerum monogynum</del> <i>Lippia erightii</i> Gray	" " "	"	4300 ft.
47 -	<i>Hymenoclea monogyna</i>	" " "	"	"
48 -	<i>Sapindus drummondii</i> H. & A.	" " "	Aug. 12	4500 ft.
49 -	<i>Simmondsia californica</i>	" " "	"	4300 ft.
50 -	<i>Pinus monophylla</i> - sp. ? associated with 2351	Graham Mts., W. slope	July 26	6500 ft.
51 -	<i>Pinus edulis</i> Associated with 2350	" "	"	"
52 -	<i>Pinus chihuahuana</i>	" "	"	7000 ft.
53 -	<i>Cercocarpus montanus</i> Raf.	Gila Mts. " (Graham Co.)	Aug. 2	5000 ft.
54 -	<i>Juniperus monosperma</i>	" " "	"	"
55 -	<i>Garrya erightii</i>	" " "	"	6000 ft.
56 -	<i>Rhamnus crocea pilosa</i> Trel.	" Summit "	Aug. 3	6800 ft.
57 -	<i>Quercus arizonica</i>	" W. slope "	"	5000 ft.
58 -	<i>Cheilanthes fendleri</i>	" Summit "	"	6800 ft.
59 -	<i>Ribes inebrians</i> Smooth, not hairy foliage	" " "	"	"

2360 - <i>Salvia pinguifolia</i> (Fernald)	Gila Mts., Summit	Arizona, 1914 Aug. 3 (Graham Co.) 6800 ft.
61 - <i>Douglasia wilcoxii</i> Rydb.	"	" " "
62 - <i>Scrophularia parviflora</i> Herb	"	" .. 6500 ft.
63 - <i>Sericotheca dumosa</i> (Nutt.) Shreve <small>Rydb.</small>	"	" .. 6800 ft.
64 - <i>Fendlera apicata</i> tomentella Thunb var. <small>Rydb.</small>	"	" .. 6500 ft.
65 - <i>Notholaena sinuata</i> Fern	" F	" .. 6800 ft.
66 - <i>Echinocactus wislizeni</i>	Solomonsville, 5 mi west	Aug. 11 .. 3200 ft.
67 - <i>Pellaea mucronata</i> D.C. Eaton Fern	Coronado Mts.	Aug. 17 - Greenlee Co. - 6500 ft.
68 - <i>Cheilanthes eatoni</i> Davymp.	"	" " "
69 - <i>Notholaena standleyi</i> Maxon Fern	"	" " "
2370 - <i>Cheilanthes fendleri</i> Fern	"	" " "
71 - <i>Nolina microcarpa</i> S. Watson	"	" " "
72 - <i>Cercocarpus eximius</i> Rydb.	"	" " "
73 - <i>Douglasia pungens</i>	"	" .. 5000 ft.
73 <sup>a</sup> - <i>Arctostaphylos pringlei</i> Parry	"	" .. 6500 ft.

2374 - <i>Quercus hypoleuca</i>	Leónonado Mts. Gresham Co.	Arizona, 1914
75 - <i>Garrya virgata</i>	" "	Aug. 17 - 6800 ft.
76 - <i>Pinus monophylla</i>	" "	" "
77 - <i>Quercus hypoleuca</i> reticulata	" "	" "
78 - <i>Quercus emoryi</i>	" "	5000 ft.
79 - <i>Philadelphus microphyllus</i> Gray	" "	6500 ft.
2380 - <i>Ceanothus angustifolium</i>	" "	5000 ft.
81 - <i>Quercus arizonica</i> reticulata	" "	" "
82 - <i>Aceratia rubyi</i> Vail	Herd	6000 ft.
83 - <i>Salvia pinguifolia</i> (Fernald)	" "	6800 ft.
84 - <i>Fendlerella cymosa</i> Greene	Shrub	6500 ft.
85 - <i>Lepidium arizonicum</i>	" "	" "
86 - <i>Pinus cismontana</i>	" "	" "
87 - <i>Simmondsia californica</i>	Shrub	Aug. 18 3500 ft.
88 - <i>Populus wislizeni</i>	Clifton	" "
Common along San Francisco River		" "

2389 - *Momisia pallida* (Torr.) Shrub

Clifton, Greenlee Co.

Arizona, 1914  
Aug. 18 3500 ft.

90 - ~~Microsphaerum~~ *mougi* Lippia wrightii

" "

Aug. 19 "

91 - *Salvia pinguifolia* (Fernald)

" "

92 - *Rhus microphylla*

San Francisco River, 7 mi. above Clifton, Aug. 22 3600 ft.

93 - *Juniperus scopularum* Sarg.  
*Goat foliage*

Blue River (Cooper Rch.) Greenlee Co. Aug. 28 5000 ft.

94 - *Platanus wrightii* S. Wats.

" "

95 - *Rhus cismontana*

" "

Aug. 30 "

96 - *Alnus oblongifolia* Torr

" "

97 - *Parthenocissus vitacea*

" "

Woodbine - Common climber.

98 - *Ptelea tomentosa* Raf.

" "

99 - *Robinia neomexicana* Gray

" "

2400 - *Schultzia leiorarpa* Greene

" "

1 - *Ceanothus fendleri* Gray

" "

Common along N.C. Canyon bottom

2 - *Salvia pinguifolia* (Fern.)

" "

Sept. 4 "

3 - *Acacia Minosa biuncifera*

" "

" " "

- 2404 - *Juniperus sibirica* Burqsd.  
 Dwarf species  
 5 - *Juniperus scopulorum* Sarg.  
 lax foliage + stringy bark  
 6 *Dugaldia hoopesii* (Gray) <sup>Benth.</sup>  
noted & coll. on San Francisco mt. last year.  
 abundant in Canadian zone cienegas - a composite.  
 7 - *Acer glabrum*  
 8 - *Acer grandidentatum*  
 9 - *Ceanothus fendleri*  
 2410 - *Garrya erioglossa*  
 11 - *Mesosphaeran* *Lippia wrightii*  
 12 - ~~Sumatra~~ *Forestiera neomexicana*  
 13 - *Berberis fremontii*  
 14 - ~~Grossularia~~ *Ribes mescalatum*?  
 15 - *Woodisia*  
 16 - *Sericotheca dumosa* (Nutt.) Rydb.  
 17 - *Agastache micrantha*  
 18 - *Pericome caudata* Gray

	Alpine	Arizona, 1914.
	Springerville (5 miles south)	Sept. 20 - 8500 ft.
	Prieto Plateau (Blue Range)	Sept. 11 9000 ft.
	"	"
	"	"
	"	"
	"	"
	"	"
	"	"
	"	"
	"	"
	"	"
	Blue River (Cooper Ranch) Greene Co.	Sept. 11 5000 ft.
	Springerville	Sept. 22 7000 ft.
	"	Oct. 3 5800 ft.
	"	"
	"	"
	"	"
	"	"

2419 - *Juniperus monos.*

" "

20 - *Yucca glauca* Nutt.

21 - *Molina microcarpa* S. Wats.

22 - *Atriplex confertifolia*

23 -  
Ht. 2 1/2 ft.

Shrub

24  
Ht. 2 ft.

Shrub

25  
Ht. 6 ft.

Shrub

26 - *Agave*

27 - *Pinus monophylla*

28 - *Mamillaria*

29 - *Titu arizonica* Engelm.

2430 - *Opuntia hystricina*?

31 - *Pinus chihuahuana*

32 - *Garrya*

33 - *Rhamnus tomentella*

Springerville

Arizona, 1914  
Oct. 3 5800 ft.

Las Vegas, Nevada,

Oct. 16 2000 ft.

" "

" "

" "

Sheep Mts. "

Oct. 26 3000 ft.

" "

" "

Las Vegas "

Oct. 29 2000 ft.

Charleston Mts. "

Nov. 18 4000 ft.

" "

" "

" "

6000 ft.

4500 ft.

2434 - *Arcostaphylos pungens*

35 - *Populus fremontii*

Large broad-leaved sp.

36 - *Ceriodictyon angustifolium*

37 - *Quercus*

38 - *Echinocactus cylindracanthus*

39 - *Abies concolor*

40 - *Cercocarpus arizonicus* Rydb.

Shrub leaves

41 - *Woodwardia spinulosa* Fern

Large species growing near stream.

42 - *Cercocarpus ledifolius* Nutt.

Broad leaves.

43

Charleston Mts., Nevada Nov. 18 4500 ft.

" " " " 4000 ft.

" " " " "

" " " " "

" " " " "

" " " " 6000 ft.

" " " " "

" " " " 4000 ft.

" " " " "

H

2443 - *Opuntia*

44 - *Yucca angustifolia*

45 - *Salix*

46 "

47

48

49

2450

Growing on bottom of lake abundantly.

51

52

53 - *Polygonum*

54

55 *Juncus*

56

57 - *Ribes*

Holbrook

June 4

Arizona, 1915.

Sedge

Sedge

Sedge

Sub

Sub

Sedge

Sedge

Sedge

Springerville

June 8

7000 ft.

Marsh Lake, White Mts., June 25

9000 ft.

"

"

"

"

"

"

"

"

"

"

"

"

"

"

"

"

"

Mt. Ord

July 14

10000 ft.

2458

59

2460

61

62

63

64

65 - *Ribes*

Thorny fruit.

66 - *Ceratodon?*

67 - *Symporicarpus*

68 - *Symporicarpus*

69 - *Primula parryi*

2470 - *Vaccinium*

71 - *Ribes montigenum*

72 - *Sorbus scopulina*

Sedge

Sedge

Sedge

Sedge

Grass

Grass

Mt. Ord, White Mts.

July 14

Arizona, 1915,  
9000 ft.

Marsh Lake, White Mts., Ariz. July 19

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

" " " "

Mt. Thomas, " East slope July 27 10000 ft.

" " " "

" " near summit " 11000 ft.

" " " "

" " " "

Shrub

" East slope "

9500 ft.

2473 - *Sorbus scopulina*

74

Shrub

75 - *Salix babiana*

76 - *Pentstemon*

77 -

Fern

78 - *Picea engelmanni*

79 - *Ribes*

Spring fruit

2480 -

Shrub

81 - *Dasiphora fruticosa*

yellow rose-like fls.

Ht. 3 ft.

82 - *Picea engelmanni?* <sup>apparently some species</sup>

Larger cones than trees at higher altitude of a

83

Orchid

84 - *Calsochortus*

85

Vine

86 - *Juglans*

87 - *Pinus chihuahuana*

Arizona, 1915.  
Mt. Thomas, White Mts., S. edge July 27 9500 ft.

" E. slope "

" near summit " 11000 ft.

" " "

" " "

" " "

" E. slope " 9500 ft.

" " "

" " "

" " "

" " "

Alpine — — July 31 8000 ft.

" " "

Cooley's Ranch, Apache Ind. Res. Aug. 8 6800 ft.

White River (10 mi. N.) " " 6300 ft.

2488 - *Ceanothus*

Arizona, 1915.

White River (10 mi. N.) Apache Ind. Res. Aug. 8, 6300 ft.

89 - *Quercus*

" " " "

2490 - *Mimosa biuncifera*

Aug. 9 5500 ft.

91 - *Alnus*

abundant along river

" " "

92 - *Rosa*

Growing along river - elongated fruit

" " "

93 - *Nolva*

Rocky sides of canyon

" " "

94 - *Selaginella*

Along canyon bottom

" " "

95 - *Crataegus*

Growing beside stream along canyon bottom

Bonito Creek, 20 mi. S.E. of White River " Aug. 12, 6000 ft.

96 - *Lonicera*

" " " "

97 - *Rhamnus*

" " " "

98 -

Shrub

" " " "

99 - *Vitis*

" " " "

2500 - *Prunus*

Common wild cherry

" " " "

1 - *Juniperus scopulorum*

" " " "

2 - *Cercocarpus*

" " " "

2503 - *Ceanothus*

Arizona, 1915  
Natanes Plateau, 20 mi. N.E. of Rice, Aug. 15; 6200 ft.

2504 - *Quercus reticulata*

" " "

5 - *Quercus arizonica*

" " "

6 - *Quercus*

Tow-growing scrubby species

5500 ft.

7 - *Rhamnus crocea*

Santa Catalina Mts. (Pina Canyon) Aug. 22 4500 ft.

8 - *Pinus*

Cinjon

5000 ft.

9 - *Pepona*

" " "

4000 ft.

2510 -

Tree

Alt. 0 - 15 ft. - 5-parted fruit - growing often in crevices of rocks on dry hills.

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2518 - *Ritis arizonica*

19 -  
Alt. 1-2 ft.

2520 - *Yucca*  
Smooth-edged leaves - Alt. 3-5 ft.

21 - *Ptelea*

22 - *Populus*

23 - *Baccharis*

24 -  
" Specimen cropped by mountain sheep.

25 - *Agave*

26 -

27 - *Nolina*

28 - *Rhamnus crocea*

29

2530

31 - *Fendlera rupicola*

32 - *Garrya*

Shrub

Herb

Shrub

Shrub

Shrubby herb

Shrub

Shrub

Arizona, 1915,  
Santa Catalina Mts. (Piña Canyon) Aug. 22, 3500 ft.

" " "

4500 ft.

3500 ft.

Sept. 2 . 4500 ft.

5000 ft.

4000 ft.

3500 ft.

6000 ft.

3500 ft.

4000 ft.

6000 ft.

2533-		Shrub	Coyote Mts., Ariz.	Sept. 2	1915, 4500 ft.
34-		Herb	" "	"	6000 ft.
35-		Shrub	" "	"	4500 ft.
36 -	Pinus edulis		" "	"	5000 ft.
37 -	Quercus		" "	"	6200 ft.
	<u>L. chrysolepis</u> top style				
38 -	Quercus reticulata		" "	"	"
39 -	Quercus arizonica		" "	"	4000 ft.
2540 -	Parkinsonia microphylla		" "	"	3200 ft.
41 -	Juglans		" "	"	5000 ft.
42 -	Celtis occidentalis		" "	"	"
43 -	Robinia		" "	"	6000 ft.
44 -	Ptelea		" "	"	4000 ft.
45 -		Fern	" "	"	3500 ft.
46 -	Cylindropuntia		" "	"	3000 ft.
47 -		Shrub	Silver Peak Mts., Nevada (S. slope)	Sept. 29	5000 ft.

1915

2548-

Herb Silver Peak Mts., Nevada (S. slope) Sept. 29 5000 ft.

49 - *Cenocelia*

Shrub

" " " "

50

Shrub

" " " "

51 - *Gutierrezia*

Shrub

" " " "

52

Herb

" " " "

53

Herb

" " " "

54

Herb

" " " "

55 - *Atriplex*

Small fruit

Shrub

" " " "

56 -

Known locally as buck brush - leaves &amp; stems grayish

57

Herb

" " " "

58

Shrub

" " " "

59 - *Lupinus*

Herb

" (Near summit) Oct. 2 8500 ft.

2560 -

Umbellifer

Herb

" " " "

61 - *Purshia tridentata*

Shrub

" " " "

62 - *Pinus aristata*

" Oct. 18 8500 ft.

2563 - *Sericotria dumosa*

64 - *Ribes*

65 -

66

67 - *Lupinus*

68 - *Philadelphus*

69 -

2570 - *Sambucus*

71 - *Cercocarpus*

72

73

74

75 - *Artemisia*

76 - *Salix*

77 - *Cephedra*

Silver Peak mts., Nevada

Oct. 18

1915  
8500 ft.

Shrub

part

Shrub

Shrub

"

Tree

Bush

Shrub

" " "

" " "

" " "

" " "

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" " "

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" " "

7500 ft.

8500 ft.

7000 ft.

8500 ft.

8500 ft.

7000 ft.

7500 ft.

8500 ft.

2578 - Rosa

Silver Peak Mts, Nevada

1915

Oct. 18

7500 ft.

79 - Populus

7500 ft.

2580 - Symphoricarpos

8500 ft.

81 - Pintostemon

82 - Acer

In clumps <sup>in dry</sup> N. slope canyon, Ht. 15-20 ft.

83 -

Grass

7500 ft.

84

Grass

85

Grass

86

Grass

87

Grass

88

Sedge

89

Grass

2590 - Juniperus monosperma

8500 ft.

91 - Ephedra

Oct. 19

5000 ft.

92 - Atriplex

Sm. sp.

2593 - *Ceanothus*

94 - *Gutierrezia*

95 - *Cehrysoma*

96 - *Atriplex*

97 -

Flax

98

Salt Bush

99

Hud.

yellow fls.

2600 - *Cehrysothamnus*

1 - *Echinocactus*

2 - *Echinocactus*

3 - *Junipers*

4 - ♀

st. 3 ft.

5 - *Vitis arizonica*

6 - *Salix*

st. 10 ft.

7 - *Rubus*

st. 4 ft.

Shrub

Blackberry

Silver Peak Mts., Nevada

Oct. 19 1915  
6000 ft.

5000 ft.

Blair

Oct. 31

Bowie (3 1/2 mi. S.) Arizona

May 6, 1916 3800 ft.

4000 ft.

Mojave Plateau (Cazador Spr.). May 10, 1916 4000 ft.

2608 - *Mammillaria*

9 - *Echinocactus*

2610 - *Juniperus monosperma*

11 - *Nicotiana*

12 - *Pinus monophylla*

13 - *Forstiera nonnigiana*

14 - *Populus wislizenii*

15 - *Celtis reticulata*

16 -

At. 2 ft.

16ft

17 - *Schmalzgia*

18 - *Quercus milcoxii*

19 - *Salix*

20 - *Rhamnus*

21 - *Aquilegia*

leathery

22 - *Zapindus drummondii*

Arizona, 1916,  
Kantan Plateau (Cagodar Sp.) May 10 4000 ft.

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2623 - *Pellaea mucronata*

24 - *Baccharis*

25 - *Baccharis*

Dry mesa above spring <sup>probably</sup> Same as 2624

26 - *Calliandra californica*

Dry mesa above spring

27 - *Echinocactus*

Dry mesa above spring.

28 - *Echinocactus*

S. slope above spring

29 - *Leucotriches*

integerrimus style

(photo)

26 30 - *Ptelea*

31 - *Robinia neomexicana*

32 - *Lecocarpus*

S. slope

33 - *Prunus*

34 - *Prunus edulis*

35 - *Prunus*

Rounded leaf.

36 - *Salix*

37 - *Acer*

Arizona, 1916  
Mantua Plateau (Cagador spr.) May 10 4000 ft.

" " " " 4500 ft.

" " " " 5000 ft.

" (5 mi. N.E. of Cagador spr.) " 5600 ft.

" " " " "

" " " " 5500 ft.

" (10 mi N.E. of Cagador spr.) May 11 6000 ft.

" " " " "

" " " " "

May 13 "

" " 5500 ft.

2638 - *Pinus monophylla*  
2638a - *Lupinus*  
39 -

Shrub

2640 - *Rhus cismontana*

41 - *Lonicera*

(photo)

42 - *Agave parryi*

(photo)

43 - *Echinocerous*

(photo)

44 - *Amelanchier*  
44a *Arctostaphylos*  
Smooth

?

45 - *Arctostaphylos*  
Pubescens

46 - *Ceanothus*

47 - *Juglans major*

48 - *Rosa*

49 - *Rhamnus crocea*

2650 - *Yucca angustifolia*

51 - *Cercidiphyllum*  
Small Leaf.

52 - *Berberis*

Arizona, 1916  
Pantano Plateau (10 mi. N.E. of Cazador Sp., May 13, 6000 ft.)

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May 14 5800 ft.

5500 ft.

Cazador Sp. May 15. 4000 ft.

2653 - *Populus*

54 - *Floranthus*

55 - *Lycium*

56 - *Salix*

57 - *Dambaeus*

Grows to very large size along Gila River

58 - *Echinocactus* Shrub  
Ht. 1 ft.

59 - *Echinocactus*  
Long, slender, plant spines

2660 - *Dudleya*

61 - *Mammillaria*

62 - *Echinocactus*

Plant 6 ft. high, others 3 to 4 ft. more normal (photo)

63 - *Agave*  
Lithogilia type

64 - *Adiantum* Fern  
Maidenhair - N. slope in wet canyon (photo)

65 - *Aquilegia*  
Yellow fls. (photo)

66 - *Muhlenbergia dumosa*  
Bamboo-like plant about 3 to 4 ft. high (photo)

67 - N. slope in wet canyon Fern

Rice, San Carlos Ind. Res.

Arizona, 1916  
May 18 2700 ft.

" " "

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Salt River (1/2 mi N. of McMillenville) May 24 "

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2668 - *Ceanothus*

69

N. slope in wet canyon

2670

N. slope in wet canyon

71

N. slope <sup>dry situations than 2671</sup> in wet canyon, but growing in

72

N. slope in wet canyon

73 - *Holma*

74 - *Ptelea*

75 - *Rhus*

76 - *Arctostaphylos*

Smooth leaves

77 - *Cercocarpus*

78 -

Dry banks of river.

79 - *Dodonaea viscosa*

Common on N. slopes. up to 3000 ft.

2680 - *Prunus*

81 - *Grossularia*

82 - *Lerataegus*

Fern

Fern

Fern  
<sup>dry situations than 2671</sup>  
but growing in

Fern

(photo)

Shrub

Salt River (12 mi. N. of McMillenville) May 24, 3800 ft. Arizona, 1916

May 24, 3800 ft.

" 2800 ft.

" "

" "

" "

May 29 4500 ft.

McMillenville

" "

" "

" "

" "

May 25 2800 ft.

Salt River

" "

" "

Tehiriachua Ranch, 18 N. of Salva June 7 4700 ft.

2683 - *Rhamnus purshiana*

84 - *Morus*

85 - *Pseudomimulus*  
*Affine*

86 - *Noliva*

photo

87 - *Opuntia*  
*Cylindropuntia* - dark red fls. (photo)

88 - *Hedysarum*

89 - *Schultzia trilobata*

2690 - *Baccharis*

91 - *Forsiera*

92 - *Grimmiodia*

93 - *Agave parryi*

94 - *Sapindus drummondii*

photo

95 - *Perideridia*

96 - *Sierraea chiricahuensis*

97 - *Hedysarum*

Arizona, 1916  
Chiricahua Ranch, 18 mi. N. of Sulva, June 7 4700 ft.

" " "

" " "

" " "

" " "

Gila Mts. 12 mi. N. of Sulva June 8 "

" " "

" " "

" " "

5 mi. N. of Sulva " "

" " "

" " "

Mt. Turnbull, N. side ~~4000~~ June 10-4500 ft.

6000 ft.

" " "

" " "

2698 - *Philadelphus*

99 - *Prunus*

2700 - *Fallugia paradoxa*

1 - *Holodiscus dumosus*

2 - *Symphoricarpos*

3 - *Prunus evanginaria?*

Small, narrow leaf

4 - *Agave palmeri*

5 - *Baccharis*

Black trunk

6 - *Opuntia*

Small leaved sp.

7

8

Leguminous shrub

9

St. 2 ft.

2710 - *Cleome*

St. 2 - 3 ft.

11 - *Astragalus*

Toes wood

12 - *Atriplex* -

St. 2 - 4 ft. - staminate plant.

Mt. Turnbull, N. side

June 10

Arizona, 1916  
7500 ft.

6000 ft.

7000 ft.

7800 ft.

7500 ft.

"

4500 ft.

3500 ft.

ash flat,

June 7

5000 ft.

Dodder

Lengama Valley 4 mi. E. of Lengama Ranch June 26

California, 1916.  
2200 ft.

Shrub

Shrub

Shrub

Shrub

Shrub

California, 1916.

2713 - *Salix*

Along Luyava River.

14 - *Ephedra*

Common along wash

15 - *Atriplex*

Common along wash - pistillate plant.

16 - *Pentstemon*

Woody at base - Along wash. - ht. 2 ft.

17 - *Atriplex*

Small bns - abundant along valley bottom

18 - *Eriogonum fasciculatum*

19 -

Shrub

Cmp. with Ephedra-like fruit & pods - com. along sandy wash

2720 -

Shrub

2' or 3' tall. To side of road along wash.

21 -

Shrub

2' or 3' tall. To side of road along wash.

22 - *Eriodictyon*

Large sp. - ht. 6-8 ft. - Abundant along wash, in places

23 -

Shrub

Fleshy leaves - rather scarce, along wash

24 *Eriogonum fasciculatum*

25 - *Eriogonum*

26 - *Eriogonum*

27 - *Eriogonum*

Luyava Valley, 4 mi. E. of Luyava Ranch, June 26 2200 ft.

6-8 ft.

(photo)

4-6 ft.

" 3 mi. E. of Luyava Ranch June 28 "

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June 29 "

Luyava Valley, S. side 6 mi. S.E. of Luyava Ranch, July 3-2500 ft.

2728-

Composite plant associated with junipers.

2729

Glutinous composite shrub, assoc. with junipers

~~Erica~~2730 - *Cneorilla*Along washes & south slopes in <sup>lower</sup> juniper belt.31 - *Juniperus californica*32 - *Aretostaphylos glauca*33 - *Lupinus fallax*.34 - *Douglas*

35 -

Comp. shrub - white velvety stems & divided leaves.  
assoc. with junipers.36 - *Solanum*

Along wash in juniper belt

37 - *Fallopia*

Small sp. - along Cuyama River

38 - *Cleomea*39 - *Astragalus*2740 - *Atriplex*

Canescens style

41 - *Populus*

California, 1916

Cuyama Valley, S. side 6 mi. S.E. of Cuyama Ranch, July 3, 2600 ft.

.. 2600 ft.

"

"

"

.. 2600 ft.

"

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2500 ft.

"

"

"

2600 ft.

"

"

"

3 mi. E. of Cuyama Ranch, July 7 2200 ft.

"

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"

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"

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"

6 mi. W. of Spanish Ranch, July 11 1500 ft.

&lt;



- 2757 - *Lemmonia* along Lengana River. Shrub  
 (photo)

58 - *Atriplex*  
*Lemmonia* on valley bottoms (photo)

59 - *Atriplex*  
*Lemmonia* on valley bottoms <sup>apparently</sup> - smaller than 2758

---

2760 - *Cereocarpus*  
 (Short pubescent fruit)

61 - *Quercus*  
 (?) *undulata*?

62 - *Quercus gambelii*

63 - *Symphoricarpos*

64 - *Arctostaphylos* *lomentosa*  
 (Pubescent species)

65 - *Asplenium* <sup>but</sup>  
 Associated with yellow pine & *Ceanothus fendleri*

66 - *Ceanothus*  
 Ht. 4 ft. (*integerrimus* stage) Not common

67 - *Garrya wrightii*

68 - *Solidago* <sup>herb</sup>  
 Associated here with yellow pine (Slender raceme)

69 - *Solidago*  
 Assoc. with yellow pine (Broad raceme)

70 - *Quercus reticulata*  
 Upper Sonoran zone ad into Transition.

71. *Quercus grisea*  
 Assoc. with *Q. emoryi* & *Q. reticulata*.

California, 1916  
Rec. July 15, 22087

Arizona, 1916

Aug. 27 5600 ft.

		Vine	Crown Shrub	
2772-	(Hops) Climbing over oak.	"	"	"
73-	Juglans major	"	"	"
74-	Fraxinus attenuata (Leom. sp.)	"	"	"
75-	Quercus (Chrysolepis type)	"	"	6700 ft.
76-	Padus	"	"	6000 ft.
	(Leom. sp.)	"	"	
77-	Ceanothus Truncate or emarginate leaves	"	"	5800 ft.
78-	Composita in Transition zone	Herb	"	6700 ft.
79-	Rhamnus	"	"	6500 ft.
80-	(Leom. sp. wh. fls.) Transition zone	Herb	"	6700 ft.
81-	Sambucus Transition zone.	"	"	7000 ft.
82-	Eriodictyon	"	"	5600 ft.
83-	Arctostaphylos (Smooth leaves)	"	"	6000 ft.
84-	Ceanothus leucocarpus (Large, slender fruit)	"	"	6000 ft.
85-	Rhamnus c. pilosa	"	"	6500 ft.
86-	Ht. - 6 ft. (Legume with sm. compound leaves) Upper Son. or Transition?	Shrub	"	"

2787 - *Ptelea*

88 -

about rock-crannies on north slopes

89 - *Baccharis glutinosa*

2790 - *Populus mitchamii*

91 -

broom-like sp. cyl. fls. - ht. 6-8 ft

92 - *Ziziphus*

Fls. sm. and inconspicuous.

93 - *Atriplex canescens*

94 - *Atriplex canescens*

Apparently same but fruiting less heavily than 2793

95 - *Douglasia*

(*D. williamsii* type)

96 -

ht. 3 ft.

97 - *Echinocactus*

98 - *Gutierrezia glomerella*

99 - *Atriplex canescens*

2800 -

ht. 1-2 ft.

1 - *Artemisia tridentata*

fern

Crown King

"

Turkey Creek

Aug. 31 3400 ft.

" 6500 ft.

Herb

Anita

Sept. 3 5800 ft.

Shrub

Grand Canyon (Eel Pavor)

" 6800 ft.

"

Sept. 7 "

2802 - *Artemisia*

Sim. to *A. tridentata*, but darker in color & smaller.

3 - *Juniperus*

Bark in strips; foliage rather lax

4 - *Fendlera rupestris* *tomentella?*

5 -

Leucop. shrub. - Ht. 1 ft.

Shrub

6 -

Ht. 1 ft.

Shrub

7 - *Nolina*

8 -

Leucop. shrub - Ht. 3 ft.

Shrub

9

Ht. 4 ft.

Shrub

2810

Ht. 1-2 ft.

Shrub

11 - *Coleogyne ramosissima*

Shrub

Ht. 2-2½ ft.

12

Ht. 3 ft.

Shrub

13 - *Fallugia paradoxa*

Shrub

# Ht. 2 ft.

14 - *Atriplex* ?

Shrub

Assoe. with *Coleogyne ramosissima*

15 - *Yucca angustissima*

Shrub

16

Ht. 3 ft.

Grand Canyon (el Tovar)

Arizona, 1916.  
Sept. 7 6800 ft.

" " "  
" (Bass Camp) Sept. 8 6600 ft.

" " "  
" " "  
Slumino Creek Sept. 10 3000 ft.

" " "  
" " "  
Bass Canyon Sept. 12 3400 ft.

Sept. 13

3200 ft.

2	2817 - Schmaltzia	Shrub	Grand Canyon, Ariz. (Bass Canyon) Sept. 12/16	3200 ft.
	Ht. 3 ft.		"	"
18	Fraginus		"	3500 ft.
	Large rounded leaves.		"	"
19		Shrub	"	3200 ft.
<del>20</del>	composito - Barcharia-like, leaves very small Ht. 2 ft.	Shrub	"	"
2820	Gutierrezia	Shrub	"	"
21		Shrub	"	3500 ft.
	Ht. 2 - 2 1/2 ft. - white flowers		"	"
22		Herb	"	3400 ft.
	Ht. 2 ft.		"	"
23		Fern	"	3000 ft.
	Dry cliffs in rocks		"	"
24	Ceanothus	Shrub	"	3500 ft.
	Ht. 4 ft. - In shaded portion of south wall		"	"
25	Schmaltzia		"	"
2	26 - Quercus		"	3600 ft.
	Ht. 4-6 ft. - shaded part of south wall		"	"
27	Nolina		"	3500 ft.
	Ht. of stalk 5 ft.		"	"
28		Shrub	"	3400 ft.
	Ht. 3 ft. - very small leaves		"	"
29	Ptelea	Shrub	"	3600 ft.
	Ht. 6 ft. - shaded part of south wall		"	"
28 30 -		Lichen	"	"
	On limestone in shaded part of south wall		"	"
31		Shrub	"	5200 ft.
	Ceanothus-like - Ht. 4 ft. - upper Son. zone		"	"
32				

2. 2832 - *Salix exigua*

33 - *Rosa*

34 - *Phragmites phragmites*  
Ht. 6 ft.

Grass

35 - *Juniperus scopulorum*

36 - *Mammillaria*

37 - *Opuntia*  
Small flat joints

38 - *Atriplex canescens*

39 - *Atriplex canescens*

2. 2840 - *Atriplex canescens* 1 ox.

41 - *Atriplex canescens*

42 - *Atriplex canescens*

43 - *Atriplex confertifolia*  
fleshy-leaved

44 - *Senecio filifolius*  
leom. grayish composite

45 - *Artemisia Atriplex confertifolia*  
*Artemisia bigelovii*

46 - *Yucca angustissima*

Iron Point, Humboldt Co.

Nevada, 1916,  
Sept. 30. 4300 ft.

Shell Creek Range (Cleveland Lk.) Oct. 31 7500 ft.

Winslow, Ariz.

July 10, 1917 - <sup>Arizona</sup> 4800 ft.

Winona

July 12 " 5800 ft.

2847-  
2847-*Grossularia* *Ribes inebrians*

2 48- *Schmalzia bakeri*

49- *Titis arizanica*

2850- *Thistle* *Cirsium arizonicum*

51- *Juglans major*

52- *Amelanchier utahensis*

53- *Forstertia neomexicana*

54 *Monarda menthaefolia* Horsemint

55- *Symphoricarpos oreophilus*

56- *Bartsia fremontii*

57- *Mentzelia Nuttallia multiflora*  
Adhesive herb - cyl. fl. - eaten by gophers

58- *Bouteloua gracilis*  
Growing in cinder beds in circular shapes.

59- *Rhus cismontana* ✓

2860- *Glycine* ~~Viola~~ *Pallidum*

61- *Dasiphora fruticosa* ✓  
Shrub with yellow flo.

Minera

Arizona, 1913.  
July 16 6400 ft.

6200 ft.

"

"

"

"

"

"

"

"

"

"

"

"

"

"

6400 ft.

Hart Prairie, San Francisco Mts. July 22

8000 ft.

- Arizona, 1917  
July 22 8000 ft.
2. 2862 - *Rosa fendleri*  
 63 - *Mammillaria*  
 Collected green  
 64 -  
 Herb with yellow Cleoma-like fls.  
 65 - *Mammillaria vivifera* (fide Rose)  
 Herbarium specimen  
 66 - *Populus wislizeni*  
 Large-leaved  
 67 - *Cheilanthes feei*  
 From dry crevices in rocks.  
 Fern  
 68 - *Artemisia bigelowii*  
 Sm. sp. with tridentate leaves  
 69 - *Cuncelia fruticosa*
2. 2870 - *Opuntia basilaris* (fide Rose)
- 71 - *Tephrocactus lecontei* (fide Rose)  
 Sm. sp. with multiple stems - usually 5 to 7 or more
- 72 - *Opuntia whipplei* (fide Rose)  
 Sm. cholla abundant on lava
- 73 - *Ephedra Torreyana*  
 Grayish sp. with low-growing habit
- 74 - *Ephedra viridis*  
 Greenish sp. with taller habit of growth than preceding
- 75 - *Artemisia filifolia*  
 Grayish sage-like shrub common in upper Son. Zone.
- 76 - *Agave*

- 2 2877 - *Juniperus monosperma*  
 occurs very sparingly on N. slope - near lower limit  
 78 - *Sarcobatus vermiculatus*.

79 - *Fraginus anomala*  
 Broad rounded leaves

2880 - *Chrysothamnus* (sp. doubtful)

81 - *Yucca baccata*

82 -  
 Peculiar bifurcated branches Shrub

83 - *Atriplex* or ~~Jussiaea~~ *canescens*

84 - ~~Atriplex~~ *Lippia wrightii* ✓

2 85 - *Atriplex canescens*

86 - *Prosopis glandulosa* ✓

87 - *Parryella filifolia* ✓

2 88 - *Eupatorium arizonicum* ✓ Shrub  
 Sp. with pungent smell

89 - *Gutierrezia cuneata*  
 Abund. in U.S. zone

2890 - ~~Cleome~~ *Peritoma serrulatum*

91 - *Tetradymia incana* ✓ Shrub  
 A characteristic comp. sp. in U.S. zone

92 - *Crassula grandiflora* Herb  
 A very abundant sp. in U.S. zone

Little Colorado Riv.	(5 mi. below Cameron)	July 31	4500 ft.	Arizona, 1917
"	"	"	4300 ft.	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
"	"	"	"	
<del>Moench's Wash</del>	Cameron (5 mi. N.)	Aug. 1	4400 ft.	
Aztec Park (7 mi. N.)		Aug. 6	6000 ft.	
Aztec Park (7 mi. N.)		Aug. 6	6000 ft.	
"	(10 mi. N.)	"	6500 ft.	

Q' Leary Peak (n. base.)

- 2893 - *Psilostrophe Tagetinae* Herb  
 a very abundant sp. in U.S. zone  
 94 - *Populus angustifolia*  
 a very narrow-leaved sp. growing at Turkey Park  
 95 - *Mammillaria vivipera*  
 Photo of plant with single flower.  
 96 - *Salsola pestifer*  
 Russian Thistle - grows in patches of *Perodipus*  
 97 - *Lupinus Oxytropis lambertii*  
 98 - *Phragmites australis*  
 leave-like grass abundant along wash  
 99 - *Celtis reticulata*  
 com. along lower part of canyon  
 2900 - *Juniperus scopulorum* SK  
 Drooping species  
 1 - *Rosa fendleri*  
 2 - *Negundo interior*  
 com. along lower part of canyon  
 3 - *Alnus tenuifolia*  
 4 - *Salix exigua*  
 Narrow-leaf  
 5 - *Schmalzia bakeri*  
 6 - *Phytadelpus Fendlera falcata*  
 7 - *Ribes Grossularia leptantha*

Arizona, 1917

D'Leary Peak (N. base.)	Aug. 6 -	6500 ft.
Minona	Aug. 8 -	6400 ft.
Angell (10 mi. N. near Walnut Park)	Aug. 10,	5600 ft.
Clein Lee	" 17 "	"
Flagstaff	Aug. 7	6900 ft.
Clein Lee	Aug. 17	5600 ft.
Canyon del Muerto	Aug. 18	6000 ft.
"	Aug. 29	6500 ft.
"	"	7000 ft.
"	"	"
Tunicha Mts. (Spruce forest)	Aug. 20	7800 ft.
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"

Aug. 20

2908 - *Ceanothus stansburiana* ✓

9 - ~~Populus angustifolia~~ *Salix*

2910 - *Tradescantia*

11 - *Picea engelmanni*

In shaded canyon - more abundant higher up

12 - *Avalanchia utahensis mormonica*

13 - *Philadelphus microphyllus*

14 - *Cornus instolonea*

15 - *Rubus strigosus neomexicanus* ✓

Thimbleberry - growing on N. slopes

16 - *Arctostaphylos uva-ursi* ✓

Dwarf species - growing among yellow pines

17 - *Alnus tenuifolia*

Along creek - large leaves

18 - *Alnus fontinalis* ✓

Along creek - small leaves

19 - *Rubus arizonicus* ✓

Raspberry - along creek

2920 - *Aquilegia Caerulea*

Columbine - wet meadow along creek - bluefl.

21 - *Ribes Grossularia leptanthia*

Among willows along creek

22 - *Dipsiphora fruticosa*

Tunicha Mts. (Spruce Creek)

Arizona, 1917.  
Aug. 20 7000 ft.

" " "

" " "

" " "

" " "

" " "

" " Aug. 26 7500 ft.

" " "

" " "

" " "

" " "

" " "

" " "

" " "

" " "

8800 ft.

- 2923 - *Distelzia involucrata* ✓

24 - *Humulus americanus*  
Hops - climbing over willows

25 - ~~Grossularia~~ *Ribes cereum*  
S. slopes only - growing in dry rocky places

26 - *Juniperus communis* *sibirica*

27 - *Sericotrichia dumosa* ✓  
S. slopes - among rocks

28 - *Philadelphus microphyllus*  
S slopes, among rocks

29 - *Ceanothus* ~~lanceolatus~~ *fodderi* ✓  
Among yellow pines on S. slopes

2930 - *Lupinus aduncus*  
S. slopes among yellow pines

31 - *Purshia* <sup>among</sup> *tridentata*  
Growing yellow pines on S. slopes

32 - *Sambucus nemoralis*  
Along creek

32 - *Pinus edulis* ✓  
Scarce on S. slopes at this elevation

34 - *Quercus neomexicana*

35 - *Quercus turbinella*  
Scrub oak - S. slopes

36 - *Krameria glandulosa* Shrub  
Peculiar spiny fruit.

37 - *Jamnia gracilis* Vine  
Winged - fruit gel fls.

Tunicha Mts. (Spruce Cr.)

Aug. 21 8800 ft.

" (Roof Butte)  
" ~~(Near head of Spruce Cr.)~~ Aug. 23 9000 ft.

9500 ft.

9000 ft.

(Spruce Cr.)

7000 ft.

Colorado Riv. (mouth Diamond Creek) Sept. 7 2000 ft.

- 2 2938 - *Grixia* ~~sagittaria~~ *californica* Shrub  
 Ht. 2 ft. - a cymp.  
 39 - *Agave utahensis*  
 2940 - ~~Solanum~~ *Physalis hederifolia* Shrub  
 41 - ~~Cylindropuntia~~ *Opuntia* (~~Cylindropuntia~~) <sup>acanthocarpa</sup> (fide Pen)  
 joints usually 8-10 in. long - stems rather sparse  
 42 - *Quercus turbinella*  
 Low-growing scrubby species in upper Son.-Zone  
 43 - *Gutierrezia tenuis*  
 44 - *Senecio riddellii* Shrub  
 A com. composite species with tender top & woody base  
 45 - *Atriplex canescens* OK  
 46 - *Ceanothus greggii* <sup>n.s.</sup>  
~~lanceolate~~ style  
 47 - *Prinus monophylla*  
 48 - *Cereocarpus argenteus*  
 49 - *Ephedra viridis*  
 2950 - *Yucca*  
~~Pin~~ sp. - *arboreascens*? (fide Standley)  
 51 - *Yucca harringtonii*?  
 Long-haired sp.  
 52 - *Echinocactus* with pinkish stems  
*Echinocactus engelmanni* (fide Rose) (Photo)

Arizona, 1917.  
 Colorado River (mouth Diamond Cr.) Sept. 7 - 2000 ft.  
 " " "  
 " " "  
 " " "  
 " " "  
 " " "  
 Peach Springs Sept. 8 4000 ft.  
 Hackberry, Sept. 13 3500 ft.  
 " " "  
 " " "  
 " " "  
 " " "  
 " " "  
 Naglini Aug. 27 7000 ft.  
 " " "  
 " " "  
 Gold Basin (20 mi. S. Gregg's Ferry) Sept. 18 3000 ft.  
 " " "  
 " " "  
 " " "

- 2 2953 - *Opuntia stanleyi* Engelm. (Fide Rose) cactaceae  
 Species growing in low mats or clumps

2 2954 - *Atriplex canescens*  
 Ht. 2 ft. - rather small fruit. Assoc. on plain

55 - *Salicornia mexicana* Torr. Shrub  
 Angular bush with bladder-like fruit

56 - *Lycium pallidum* Shrub  
 Lycium-like

57 - *Sapindus drummondii*  
 along dry wash

58 *Lycium parviflorum*? Shrub  
 Thongs of with green red fruit - on dry bunches along river

59 *Isocoma heterophylla* Shrub  
 Common comp. on dry bunches along river

2 2960 *Peritoma luteum* Herb  
 Yellow bellflower-like plant - along river

1 - *Acacia*  
 leom. along river

2 - *Prosopis pubescens* ✓  
 along river

3 - *Chrysoma laricifolia* (Gray) Greene Shrub  
 Chrysoma-like plant

4 - *Fragaria attenuata*  
 On dry hills in U.S. zone

5 - *Ceanothus holacanthus* ✓

6 - *Ephedra viridis*  
 On dry hills

7 - *Douglasia turbinella*  
 Ranging well down along north slopes to about 3500 ft. -  
 assoc. with a *Ceanothus* (*Ceanothus* style) & numerous 25 sp.

Arizona, 1917

Masic Mt. Mill. 40 mi. S. of Gregg's Ferry Sept. 18-3000 ft.

Gold Basin 20 mi. S. of Gregg's Ferry - "

Sept. 20 '38 or 39.

Big Sandy Riv. (near Owens) " 2000 ft.

2960 *Pteroma luteum* Herb.  
Yellow bellome-like plant - along river

1 - Seelip  
leom. along river

2 - *Prosopis pubescens* ✓  
Along river.

*Chrysoma laricifolia* (Gray) Greene Shrub  
Chrysoma-like plant

4 - *Fraxinus attenuata*  
On dry hills in U.S. zone

5- *Ceanothus holacanthus* ✓

6 - Ephedra viridis

on dry hills

7- *Durus turbinella*

Ranging well down along north slopes to about 3500 ft. -  
assoc. with a *Granito* (cuneatus style) & numerous L.S. sp.

Sept. 23 3800 ft.

4000 ft.

350084.

4000 ft.

3800 ft.



			Hualapai Mts.	det. 4	Arizona, 1917. 5800 ft.
2	2983 - <i>Pitcairnia</i>				
2	84 - <i>Quercus wislizenii</i> chrysolepis-type		"	det. 5	8000 ft.
2	85 - <i>Ptelea Tomentosa</i>		"	"	6300 ft.
2	86 - <i>Eriogonum wrightii</i> white & pink fls.	Shrub	"	"	"
2	87 - <i>Rosa maximiliani</i>		"	"	7000 ft.
2	88 - <i>Ceanothus fendleri</i>		"	"	"
2	89 - <i>Eupatorium arizonicum</i>	Herb	"	"	6500 ft.
2	2990 - <i>Quercus undulata</i> ?		"	"	"
2	1 - <i>Eriogonum bakeri</i>	Shrub	"	"	"
2	1 yellow fls.		"	"	"
2	2 - <i>Acastaphylos pungens</i> HBK Smooth		"	"	6000 ft.
2	3 - <i>Acastaphylos springlei</i> pubescent		"	"	"
2	4 - <i>Senecio spartioides</i>	Herb	"	"	6500 ft.
2	4 Ht. 2 ft.		"	"	"
2	5 - <i>Adenostegia wrightii</i>	Herb	"	"	"
2	5 coll. among yellow pines at ground line also		"	"	"
2	6 - <i>Periderion angustifolium</i>		"	"	5800 ft.
2	7 - <i>Garrya wrightii</i>		"	"	"

2 2998 - *Podus virens* W. & S.

2 99 - *Rhamnus usneoides* Greene  
leony. sp.

3000 - *Coleosanthus californicus* Shrub  
upper Son. sp. - composite

1 - *Periodictyon angustifolium* Nutt.

2 - ~~St~~ *Senecio riddellii* Shrub  
yel. comp. with live stems & woody base

3 - *Eriogonum fasciculatum* Shrub  
Dom. sp. on plains

4 - *Chrysoma laricifolia* Shrub  
leony. sp. com. along base of mts.

5 - *Quercus turbinella*  
scrub sp.

6 - *Ptelea angustifolia* Benth.

7 - *Coleosanthus californicus* Shrub  
Upper Son. comp.

8 - *Ventilomon microphyllus* Gray Shrub

9 - *Chrysoma laricifolia* Shrub  
upper Son.

3010 - *Eurocarpus montanus*

11 - *Ceanothus greggii*

12 - *Nolina microcarpa*

Siwalpi Mts.

Arizona, 1917  
Oct. 5 5800 ft.

chloride

Oct. 9 4000 ft.

Harguahola Mts.

Oct. 14 5000 ft.

- 2 3013 - *Quercus turbinella*  
 2 14 - *Garrya wrightii*  
 15 - *Eriogonum wrightii* Shrub  
 16 *Eriogonum fasciculatum* Shrub  
 3029 *Salvia* (sp. doubtful) Shrub  
 18 - *Baccharis* (sp. doubtful)  
 19 - *Berberis trifoliolata*  
 3028' - *Simmondsia californica*

24

22

Harguabola mts.

Arizona, 1917  
Oct. 14 5000 ft.

" " "  
" " "  
" " "  
" " "  
" " "  
" " 3000 ft.  
" " 3500 ft.  
" " "